

AMENDMENTS TO THE CLAIMS

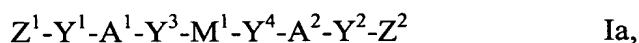
Claims 1-65 (Canceled)

Claim 66 (Currently Amended): A process for printing or coating a substrate, which comprises:

- i) applying to said substrate, and, if appropriate, aligning on said substrate, a liquid-crystalline composition comprising:

A) a liquid-crystalline mixture comprising

A1) 44-99.5% by weight based on the total amount of component A) of at least one compound of the formula Ia



and at least one compound of the formula Ib



where the variables, independently of one another, are as defined below:

P is hydrogen, C₁-C₁₅ alkyl, which may be monosubstituted or polysubstituted by methyl, fluorine, chlorine or bromine and in which non-adjacent CH₂-groups may be replaced by oxygen, sulfur, -CO-, -O-CO-, -CO-O- or -O-CO-O-, or a -Y⁸-A⁴-Y⁶-Z⁴ group, where the variables are as defined below,

Z¹ to Z⁴ are polymerizable groups,

Y¹ to Y⁸ are bridging units and are each a single chemical bond, oxygen, sulfur, -O-CO-, -CO-O-, -O-CO-O-, -CO-NR-, -NR-CO-, -O-CO-NR-, -NR-CO-O-, or -NR-CO-NR-,

Z^1-Y^1- , Z^2-Y^2- , Z^3-Y^5- and, if present, Z^4-Y^6- are selected from the group consisting of methacryloyloxy, acryloyloxy and vinyloxy,

R is hydrogen or C_1-C_4 alkyl,

A^1 to A^4 are spacers having 1 to 30 carbon atoms, in which the carbon chain may be monosubstituted or polysubstituted by methyl, fluorine, chlorine or bromine and/or interrupted by ether oxygen, thioether sulfur or by non-adjacent imino or C_1-C_4 alkylimino groups,

M^1 is a mesogenic group of the formula Ic



and

M^2 is a mesogenic group of the formula Id



where the variables in the formulae Ic and Id, independently of one another, are as defined below:

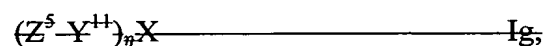
T^1 , $T^{1'}$ and T^2 are divalent saturated or unsaturated carbocyclic or heterocyclic radicals,

Y^9 and Y^{10} are bridging units as defined for Y^1 to Y^8 or $-CH_2-O-$, $-O-CH_2-$, $-CH=N-$, $-N=CH-$ or $-N=N-$,

r is a value of 0, 1, 2 or 3,

where the radicals T^2 and Y^{10} , in the case where r is not 0, may be identical or different, and

A2) at least one chiral compound selected from the group consisting of



and $(Z^{11}-Y^{11}-A^5-Y^{12}-M-Y^{13})_nX$ Ih,

in which the variables Z^5 and Z^{11} are polymerizable groups, Y^{11} to Y^{13} are bridging units, A^5 are spacers and M are mesogenic groups and which have the same general meaning as the variables Y^1 to Y^8 , A^1 to A^4 and M^1 and M^2 in the formulae Ia and Ib and for M^1 and M^2 in the formulae Ic and Id, n is 1, 2, 3, 4, 5 or 6, X is an n-valent chiral radical where the n groups bonded to the chiral radical X may be identical or different,

- B) further additives selected from the group consisting of
 - b1) photoinitiators,
 - b2) reactive thinners and
 - b3) diluents, and
- C) if desired, further additives selected from the group consisting of
 - c1) antifoams and deaerators,
 - c2) lubricants and flow-control agents,
 - c3) thermal curing or radiation-curing auxiliaries,
 - c4) substrate wetting auxiliaries,
 - c5) wetting and dispersion auxiliaries,
 - c6) hydrophobicizing agents,
 - c7) adhesion promoters and
 - c8) auxiliaries for improving the scratch resistance, and
- D) if desired, further additives selected from the group consisting of
 - d1) dyes and
 - d2) pigments, and
- E) if desired, further additives selected from the group consisting of light,

heat and/or oxidation stabilizers that stabilize the liquid-crystalline composition against light, heat and/or oxidation,

and

- ii) applying at least one further non-liquid-crystalline print or at least one further non-liquid-crystalline coating, where the non-liquid-crystalline print or non-liquid-crystalline coating contains an IR- or UV-absorbent or fluorescent dye or pigment,

or carrying out steps i) and ii) in the reverse sequence, and

- iii) if desired, applying at least one absorption layer and/or protective layer and/or thermally activatable adhesive layer, and
- iv) curing the liquid-crystalline composition produced in step i) and/or the non-liquid-crystalline print or non-liquid crystalline coating produced in step ii).

Claim 67 (Previously Presented): The process as claimed in Claim 66, wherein said substrate is at least partially transparent in the wavelength range from 250 to 1300 nm.

Claim 68 (Previously Presented): The process as claimed in Claim 66, in which said substrate may be precoated in one or more colors.

Claim 69 (Previously Presented): A process for making counterfeiting-proof markings comprising the process as claimed in Claim 66, wherein said liquid-crystalline composition in step i) is a colored and photochemically polymerizable liquid-crystalline composition and step i) comprises polymerizing said liquid-crystalline composition by UV-light; and wherein step iii) comprises applying a final absorption layer.

Claim 70 (Previously Presented): The process as claimed in Claim 66 wherein in steps i) and, if used step ii) prints and coatings are applied alternately or in any sequence and number.

Claim 71 (Previously Presented): A substrate which has been printed or coated by the process as claimed in Claim 66.

Claim 72 (Previously Presented): A substrate which has been printed or coated by the process as claimed in any one of Claims 67 to 69.

Claim 73 (Previously Presented): A substrate which has been printed or coated by the process as claimed in Claim 70.

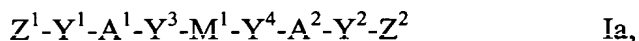
Claim 74 (Previously Presented): A multilayer structure produced by the process of Claim 66 and comprising
the substrate; and, on the substrate,
a liquid crystalline layer comprising the liquid-crystalline composition, and
a non-liquid crystalline layer comprising the IR- or UV-absorbent or fluorescent dye or pigment.

Claim 75 (Currently Amended): A liquid-crystalline composition comprising

A) a liquid-crystalline mixture comprising

A1) 44-99.5% by weight based on the total amount of component A) of at

least one compound of the formula Ia



and at least one compound of the formula Ib



where the variables, independently of one another, are as defined below:

P is hydrogen, or C₁-C₁₅ alkyl, which may be monosubstituted or polysubstituted by methyl, fluorine, chlorine or bromine and in which non-adjacent CH₂-groups may be replaced by oxygen, sulfur, -CO-, -O-CO-, -CO-O- or -O-CO-O-, where the variables are as defined below,

Z¹ to Z³ are polymerizable groups,

Y¹ to Y⁵ and Y⁷ are bridging units and are each a single chemical bond, oxygen, sulfur, -O-CO-, -CO-O-, -O-CO-O-, -CO-NR-, -NR-CO-, -O-CO-NR-, -NR-CO-O-, or -NR-CO-NR-,

Z¹-Y¹-, Z²-Y²-, and Z³-Y⁵- are selected from the group consisting of methacryloyloxy, acryloyloxy and vinyloxy,

R is hydrogen or C₁-C₄ alkyl,

A¹ to A³ are spacers having 1 to 30 carbon atoms, in which the carbon chain may be monosubstituted or polysubstituted by methyl, fluorine, chlorine or bromine and/or interrupted by ether oxygen, thioether sulfur or by non-adjacent imino or C₁-C₄ alkylimino groups,

M^1 is a mesogenic group of the formula Ic



and

M^2 is a mesogenic group of the formula Id



where the variables in the formulae Ic and Id, independently of one another, are as defined below:

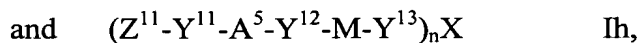
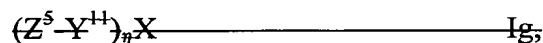
T^1 , $T^{1'}$ and T^2 are divalent saturated or unsaturated carbocyclic or heterocyclic radicals,

Y^9 and Y^{10} are bridging units as defined for Y^1 to Y^5 and Y^7 or $-CH_2-O-$, $-O-CH_2-$, $-CH=N-$, $-N=CH-$ or $-N=N-$,

r is a value of 0, 1, 2 or 3,

where the radicals T^2 and Y^{10} , in the case where r is not 0, may be identical or different, and

A2) at least one chiral compound selected from the group consisting of



in which the variables Z^5 and Z^{11} are polymerizable groups, Y^{11} to Y^{13} are bridging units, A^5 are spacers and M are mesogenic groups and which have the same general meaning as the variables Y^1 to Y^5 and Y^7 , A^1 to A^3 and M^1 and M^2 in the formulae Ia and Ib and for M^1 and M^2 in the formulae Ic and Id, n is 1, 2, 3, 4, 5 or 6, X is an n -valent chiral

radical where the n groups bonded to the chiral radical X may be identical or different,

- B) further additives selected from the group consisting of
 - b1) photoinitiators,
 - b2) reactive thinners and
 - b3) diluents, and
- C) if desired, further additives selected from the group consisting of
 - c1) antifoams and deaerators,
 - c2) lubricants and flow-control agents,
 - c3) thermal curing or radiation-curing auxiliaries,
 - c4) substrate wetting auxiliaries,
 - c5) wetting and dispersion auxiliaries,
 - c6) hydrophobicizing agents,
 - c7) adhesion promoters and
 - c8) auxiliaries for improving the scratch resistance, and
- D) if desired, further additives selected from the group consisting of
 - d1) dyes and
 - d2) pigments, and
- E) if desired, further additives selected from the group consisting of light, heat and/or oxidation stabilizers that stabilize the liquid-crystalline composition against light, heat and/or oxidation,

where additives B), C), D) and E) are dispersed throughout the liquid-crystalline mixture A).

Claim 76 (Previously Presented): The liquid-crystalline composition as claimed in Claim 75, having a viscosity of from 0.5 to 10.0 Pa s at 20°C.

Claim 77 (Previously Presented): A printing ink comprising the liquid-crystalline composition of Claim 75.

Claim 78 (Previously Presented): A process comprising printing or coating a substrate with a composition comprising the liquid-crystalline composition as claimed in Claim 75.

Claim 79 (Previously Presented): An electro-optical component comprising the liquid-crystalline composition as claimed in Claim 75.

Claim 80 (Previously Presented): A process comprising counterfeit-proof marking articles with a composition comprising the liquid-crystalline composition as claimed in Claim 75.

Claim 81 (Previously Presented): A process comprising coating a substrate with a composition comprising the liquid-crystalline composition as claimed in Claim 75 to produce a film or coating which selectively reflects light in the wavelength range of from 250 to 1300 nm.

Claim 82 (Previously Presented): A polymer or polymerized film obtained by polymerizing the liquid-crystalline composition as claimed in Claim 75.

Claim 83 (Previously Presented): An optical filter, polarizer, decoration, counterfeiting-proof marking or reflection medium for the selective reflection of radiation in the wavelength range of from 250 to 1300 nm comprising the polymer or polymerized film as claimed in Claim 82.

Claim 84 (Previously Presented): A process for printing or coating a substrate, which comprises:

- i) applying the liquid-crystalline composition as claimed in Claim 75 to the substrate, and, if appropriate, aligning the liquid-crystalline composition on the substrate, and
 - ii) if desired, applying at least one further non-liquid-crystalline print or at least one further non-liquid-crystalline coating,
- or carrying out steps i) and ii) in the reverse sequence, and
- iii) if desired, applying at least one absorption layer and/or protective layer and/or thermally activatable adhesive layer, and
 - iv) curing the prints and/or coatings produced in step i) and, if carried out, step ii) and/or step iii), where the curing can take place either directly after application of each individual print or each individual coating in step i) and, if carried out, step ii) and/or step iii) or simultaneously.

Claim 85 (Previously Presented): The process as claimed in Claim 84, wherein said substrate is at least partially transparent in the wavelength range from 250 to 1300 nm.

Claim 86 (Previously Presented): The process as claimed in Claim 84, in which said substrate may be precoated in one or more colors.

Claim 87 (Previously Presented): A process for making counterfeiting-proof markings comprising the process as claimed in Claim 84, wherein said liquid-crystalline composition in step i) is a colored and photochemically polymerizable liquid-crystalline composition and step i) comprises polymerizing said liquid-crystalline composition by UV-light; wherein step ii) comprises further applying prints or coatings containing IR- or UV-absorbent or fluorescent dyes or pigments, and wherein step iii) comprises applying a final absorption layer.

Claim 88 (Previously Presented): The process as claimed in Claim 84, wherein in step i) and, if used step ii) prints and coatings are applied alternately or in any sequence and number.

Claim 89 (Previously Presented): A substrate which has been printed or coated by the process as claimed in Claim 84.

Claim 90 (Previously Presented): A substrate which has been printed or coated by the process as claimed in any one of Claims 85 to 87.

Claim 91 (Previously Presented): A substrate which has been printed or coated by the process as claimed in Claim 88.